

2

Methods

2.1 Calculation of Physical and Mental Health Summary Scores

The Short Form-36 (SF-36) is the underlying general health status assessment tool of the HOS. Summary scales of physical and mental health, denoted ‘physical component score’ (PCS) and ‘mental component score’ (MCS), are calculated from the SF-36 responses of each beneficiary. In the SF-36, the PCS and the MCS are calculated using eight scales that comprise all 36 questions. The scales are based on various health concepts, and are split into two categories, for physical health and mental health (Ware *et al.*, 1993). The physical health scales are physical functioning, role-physical, bodily pain, and general health. The mental health scales are vitality, social functioning, role-emotional, and mental health. While the eight scales are classified into separate physical and mental health domains, all eight scales are used to calculate both the PCS and the MCS; the four mental health scales are given less weight in the PCS score, and greater weight in the MCS score, and vice-versa.

The PCS and MCS may also be computed from a 12-question subset of the SF-36, the SF-12. The SF-12 survey and scoring method were developed as a shorter version of the SF-36 survey, which would produce comparable health measures (scores), but a higher survey response rate. The SF-12 questions include two questions each from the physical functioning, role-physical, role-emotional, and mental health scales, and one

question each on bodily pain, general health, vitality, and social functioning (Ware *et al.*, 1995). All twelve of these questions must be answered for either the PCS or MCS component scores to be computed; no averages or substitutions may be made. The SF-12 represents the smallest subset of HOS questions that may be used to compute the PCS and MCS scale scores.¹

The SF-36 was our preferred scoring method and was used whenever possible. The PCS and MCS scores calculated from the SF-36 are more accurate and more sensitive to changes in health status. The SF-12 scores are used in cases where we were unable to calculate an SF-36 score. In calculating response rates, a beneficiary was considered a ‘respondent’ *only* if at least one of these two methods could be used to calculate a mental and physical summary score for the beneficiary.

Table 1 shows managed care and FFS respondents by scoring method. For the managed care HOS, 97% of scores are created using the SF-36 (when both are feasible we used the SF-36). For the FFS survey, on the other hand, only 81% of the scores are from the SF-36, with 19% from the SF-12. The greater proportion of FFS SF-12 scores reflects the use of completion of the SF-12 as the definition of a completed survey for the FFS HOS. In the FFS HOS, special efforts were made to "convert" nonrespondents to the initial SF-36 questionnaire to respondents to the SF-12 questionnaire. The summary PCS and MCS scores from the SF-12 are designed to be comparable to the SF-36 scores. When we analyzed the SF-12 versus SF-36 scores of respondents to the FFS HOS for whom both could be calculated (McCall *et al.*, 2000), we found that the mean SF-12 PCS

¹ For complete descriptions and scoring guidelines for the SF-36 and the SF-12, refer to Ware *et al.* 1993 and 1995.

Table 1
HOS Respondents by Scoring Method

	Number of Respondents	
	<u>Managed Care</u>	<u>Fee-For-Service</u>
SF-36 Score Only ¹	4,326	38
SF-12 Score Only ²	4,582	1,279
Both SF-36 and SF-12 Scores ³	160,014	5,317
All Scored Beneficiaries ⁴	168,922	6,634
Neither Score ⁵	110,213	3,366

¹ The survey could be scored using the SF-36 scoring method, but not the SF-12.

² The survey could be scored using the SF-12 scoring method, but not the SF-36.

³ The survey could be scored using both the SF-36 and the SF-12 scoring methods.

⁴ A beneficiary was counted as having a score if the survey could be scored using either one or both of the scoring methods. All beneficiaries in this category were used in the analysis presented in this report.

⁵ Either the beneficiary did not return a survey or the survey did not contain enough information to be scored using either scoring method. Incomplete surveys were not used in any section of the analysis contained in this report.

OUTPUT: RUN001

SOURCE: Health Economics Research, Inc. Analysis of the 1997 Joint Managed Care/Fee-For-Service Health Outcomes Survey (HOS) Database.

was slightly higher (by 0.87 points) than the mean SF-36 PCS, and the mean SF-12 MCS was slightly lower (by 0.69 points) than the mean SF-36 MCS. These differences are small, and could be due in part to random sampling error. The different proportions of SF-36 versus SF-12 scores in the FFS versus managed care HOS should not have any appreciable effect on our comparisons.

The FFS HOS and the managed care HOS used alternative definitions of a completed survey. The definition of a completed survey used by HER/NERI while conducting the FFS HOS was that it must be possible to calculate either an SF-36 or an SF-12 score. In our analyses for this report, we use this FFS HOS definition of a respondent. The FFS HOS definition of response does not require other specific questions or percentages of questions to be answered. The MCO definition requires that a respondent must answer at least 80% of the survey, including questions 1, 2, and 41.

Table 1a displays how the respondent definition affects mean health scores. Although the response rate for the FFS sample is significantly lower when the MCO definition of a completed survey is used,² mean PCS and MCS scores are virtually identical under either response rate definition for both FFS and MCO samples. Mean scores for MCO beneficiaries who are respondents under the FFS response definition but who are not respondents under the MCO definition are slightly lower than scores of those who are respondents under the MCO definition (38.6 versus 40.6 for PCS and 49.8 versus 51.9 for MCS). But these beneficiaries comprise only 5,313 of the 168,922 total beneficiaries who are MCO respondents under the FFS response definition and thus have little effect on average scores. The mean PCS for the FFS sample does not differ based on whether or not the survey meets the MCO definition of a completed survey, and the mean MCS is only slightly lower if the observation does not meet the MCO response

² This is primarily because those who completed the SF-12 only are respondents under the FFS response definition, but not under the MCO definition.

Table 1-a

Response Rates by Definition of Completed Survey

	<u>Number</u>	Response <u>Rate</u>	<u>PCS</u>	<u>MCS</u>	95% Confidence Intervals			
					<u>PCS</u>		<u>MCS</u>	
					<u>Lower</u>	<u>Upper</u>	<u>Lower</u>	<u>Upper</u>
FFS Definition								
MCO Benes	168,922	60.5	40.6	51.8	40.5	40.6	51.8	51.9
FFS Benes	6,634	66.3	38.4	50.9	38.1	38.7	50.6	51.1
MCO Definition								
MCO Benes	163,609	58.6	40.6	51.9	40.5	40.7	51.8	52.0
FFS Benes	5,152	51.5	38.4	51.0	37.7	39.1	50.4	51.6
Scored surveys NOT included in the MCO Definition								
MCO Benes	5,313	1.9	38.6	49.8	38.0	39.3	49.2	50.4
FFS Benes	1,482	14.8	38.4	50.3	37.2	39.6	49.7	50.9

OUTPUT: RUN004 and RUN019

SOURCE: Health Economics Research, Inc. Analysis of the 1997 Joint Managed Care/Fee-For-Service Health Outcomes Survey (HOS) Database.

definition. In short, our use of the FFS HOS response definition rather than the MCO HOS response definition appears to have no effect on our results.

2.2 Fee-for-Service/Managed Care Comparisons

We present two sets of FFS/managed care comparisons in this report:

- a comparison of FFS and managed care respondents to the HOS; and
- a comparison of the national Medicare FFS and managed care populations.

One set of comparisons is of respondents to the FFS HOS and to the managed care HOS. This comparison includes FFS respondents from all 10 FFS HOS subsamples—the national random sample, the five small geographic area samples, and the four physician group practice samples—and all respondents to the Cohort 1 managed care HOS. The purpose of this analysis is simply to compare characteristics of respondents to the FFS HOS to characteristics of respondents to the managed care HOS. These comparisons do not generalize to any larger population beyond HOS respondents. The sample size of FFS observations is maximized in this comparison because all 10 FFS survey subsamples are included in the analysis. In this analysis, observations (respondents) are unweighted.

Another set of comparisons is of the national FFS and managed care populations. Of the 10 FFS survey subsamples, only the single random national sample was designed to be representative of the entire Medicare national FFS population. The other subsamples are drawn from particular geographic areas or group practice beneficiaries, and are not representative of the national Medicare population. To represent the FFS Medicare population, we included only the FFS national sample in the second set of comparisons. The sampling frame for this subsample comprised only 1,000 of the total 10,000 FFS HOS sampling frame. Therefore, the FFS sample sizes for the second set of

comparisons are approximately one-tenth as large as for the comparison of HOS respondents. This limits the statistical power of these comparisons to detect FFS/managed care differences, especially for small subpopulations (e.g., beneficiaries who are highly functionally impaired).

Without adjustments, respondents to the managed care HOS do not represent the national Medicare managed care population. The managed care HOS samples 1,000 beneficiaries from each Medicare managed care plan. Therefore, the same number of beneficiaries are sampled from large and small plans. But beneficiaries in large plans comprise a larger share of the national Medicare managed care population. To account for the different shares of plans in total managed care enrollment, we weight plan respondents by the individual plan's share of total Medicare managed care enrollment.

The weight we employ is:

$$\text{weight for managed care observations in plan } i = [E(i)/E][1/R(i)]\text{NOBS}, \quad (1)$$

where $E(i)$ is enrollment in plan i , E is total national Medicare managed care enrollment, $R(i)$ is the number of respondents for plan i , and NOBS is number of observations (i.e., total number of managed care HOS respondents across all plans). Weighting up to the national average can be thought of as a two-step procedure. First, means for each plan are computed. Second, the plan means are weighted to the national total. The first term, $E(i)/E$ accounts for each plan's share of total managed care enrollment. The second term, $1/R(i)$, accounts for the number of respondents for each plan. Respondents from plans with fewer overall respondents receive a higher weight, because they are more important in determining the plan average. The third term, NOBS , is a normalizing factor so that

the sum of the weights equals the number of Medicare managed care respondents. In the SAS programming language, this ensures that the degrees of freedom used in statistical tests equal the number of managed care observations, which yields the correct test results.

In our analyses, each respondent to the FFS HOS national sample received a weight of one. Since the FFS national sample is a simple random sample of the national FFS population, there was no need to weight FFS observations differentially. In sum, to compare the national Medicare FFS and managed care populations, we used the following procedure:

- limit FFS sample to the single national random sample;
- weight managed care observations by the weight shown in equation (1) above; and
- weight FFS observations by one.

2.3 Sampling and Nonresponse Bias

The FFS national sample we analyze may not accurately reflect the universe of Medicare FFS enrollees for one or more of three reasons: sampling bias, nonresponse bias, or random error. We discuss random error (tests of statistical significance) in Section 2.6 below. In this section, we discuss sampling and nonresponse bias. The distribution by demographic characteristic of the sample frame and respondents to the managed care and FFS HOSs are shown in Table 2. In addition, the rightmost column of Table 2 shows the proportions of the universe of FFS enrollees by selected demographic characteristics.

Table 2
Nationally Representative HOS Sample Distribution by Demographic Characteristics

	Enrollment-Weighted Managed Care¹					Fee-for-Service National Sample²					Percentage of FFS Universe⁶
	Sample Frame	Number of Respondents	Percentage Response Rate³	Percentage of Survey Frame⁴	Percentage of Respondents⁵	Sample Frame	Number of Respondents	Percentage Response Rate	Percentage of Survey Frame	Percentage of Respondents	
Entire Sample	279,135	168,922	56.5	100.0	100.0	1,000	617	61.7	100.0	100.0	100.0
Gender											
Male	120,656	73,015	56.6	43.8	43.9	403	247	61.3	40.3	40.0	42.9
Female	158,479	95,907	56.5	56.2	56.1	597	370	62.0	59.7	60.0	57.1
Race											
White	240,095	148,859	57.8	85.6	87.5	876	545	62.2	87.6	88.3	85.1
Black	24,121	12,283	48.9	7.4	6.4	80	45	56.3	8.0	7.3	9.2
Other	14,919	7,779	49.1	7.0	6.1	44	27	61.4	4.4	4.4	5.2
Original Reason For Entitlement											
Aged without ESRD	259,937	158,377	56.9	93.9	94.4	803	512	63.8	80.3	83.0	--
Aged with ESRD	37	18	55.9	0.0	0.0	0	0	n/a	n/a	n/a	--
Disabled Without ESRD	19,145	10,518	51.2	6.1	5.5	197	105	53.3	19.7	17.0	--
Disabled With ESRD	*	*	*	*	*	*	*	*	*	*	--
ESRD Only	*	*	*	*	*	*	*	*	*	*	--
Medicaid Status											
No Medicaid	266,880	163,229	57.1	95.7	96.6	838	539	64.3	83.8	87.4	--
Medicaid Coverage	12,255	5,693	44.7	4.3	3.4	162	78	48.1	16.2	12.6	--
Age											
Under 65	18,154	9,885	50.6	5.8	5.2	130	65	50.0	13.0	10.5	13.6
65-74	145,244	92,542	59.9	50.5	53.5	426	261	61.3	42.6	42.3	45.7
75-84	90,387	54,088	55.8	34.0	33.6	325	214	65.8	32.5	34.7	29.8
85+	25,350	12,407	45.2	9.6	7.7	119	77	64.7	11.9	12.5	10.8

* Data suppressed because of fewer than 10 respondents.

¹ Includes all managed care survey recipients, data is weighted by enrollment of managed care plans.

² Includes fee-for-service national sample only

³ Weighted by plan enrollment.

⁴ Weighted by plan enrollment.

⁵ Weighted by plan enrollment.

⁶ 1997 Data for all Medicare FFS enrollees from Table 6, p.94 of HCFA (1999).

OUTPUT: RUN018 and NER125

SOURCE: Health Economics Research, Inc. analysis of the Round One Joint Managed Care (May-September 1998 data)/
Fee-For-Service (June 1998-January 1999 data) Health Outcomes Survey (HOS) Database.

Our FFS national sample was not a random sample of all FFS enrollees. Beneficiaries had to be enrolled in Medicare Part A and B for the continuous 12 month period in 1997 to be eligible for our sample (McCall *et al.*, 1998). Thus, Medicare beneficiaries turning 65 during 1997 were ineligible, resulting in a lower percentage of beneficiaries in the younger elderly age group. This is evident comparing the "percentage of survey frame" to the "percentage of FFS universe" columns in Table 2. The older age of the population, in turn, affects the proportion that are female as male Medicare beneficiaries tend to die off more rapidly than their female counterparts, leaving a more female population with increasing age.

Response rates for blacks, the Medicaid-enrolled, and the under-age-65 disabled were lower in the FFS national sample. This creates further differences between respondents to the FFS national sample, and the universe of FFS enrollees. For example, 13.6 percent of the universe of enrollees are under age 65 versus only 10.5 percent of respondents to the national FFS HOS sample. Overall, respondents to the FFS national sample are more female, more white, and more concentrated among the older elderly than the FFS universe.

We did not make any adjustments for differences between the FFS national sample respondents and the FFS universe in our analyses. If such adjustments had been made, how much difference would they make in our results? As an illustrative example, we compute the effect on the mean SF-36 PCS and MCS of reweighting our data to reflect the age distribution of the FFS universe. Using the mean national sample PCS values by age from Table 4 and the FFS universe proportions from Table 2, the

reweighted mean FFS PCS is $(31.8)*(0.136) + (41.6)*(0.457) + (37.9)*(0.298) + (32.6)*(.108) = 38.2$, which is the same as the unweighted FFS PCS (first row of Table 4). Using the national sample MCS values by age from Table 4 and the FFS universe proportions from Table 2, the reweighted mean FFS MCS is $(37.5)*(0.136) + (51.4)*(0.457) + (49.8)*(0.298) + (48.0)*(.108) = 48.6$. This compares to an unweighted FFS MCS of 48.9 (first row of Table 4). In sum, the reweighted PCS is the same, and the reweighted MCS differs only slightly, from their unadjusted values.³ Similar calculations for other demographic factors show similar differences, that is, one-half point or smaller, in the mean PCS and MCS. This level of difference is not clinically significant (see Section 2.7 below).

We conclude that our national FFS sample respondents adequately represent the universe of Medicare FFS enrollees, at least insofar as can be determined from demographic characteristics.⁴ Moreover, it should be remembered that our main focus is on comparisons of the FFS and managed care populations. The differential nonresponse by demographic characteristic is similar for both FFS and managed care survey eligibles (Table 2). Hence, comparisons between the two sets of respondents or populations should not be biased to a significant degree by nonresponse. We also note that to the extent that nonresponse bias is related to demographic characteristics such as age and

³ Our FFS national sample includes too few of both the under-age-65 disabled and the younger elderly age 65-74 relative to the FFS universe. Since the disabled are in poorer average health while the younger elderly are in better average health compared to the entire Medicare universe, these discrepancies tend to offset each other.

⁴ We can observe nonresponse only by demographic characteristics, which are available for the sampling frame. It is possible that nonresponse differences might be greater by health status. However, we have no way to observe this or correct for it since health status is not observable for nonrespondents. HER is conducting an additional investigation into this issue through a claims-based analysis of respondents and non-respondents to the FFS HOS.

Medicaid enrollment, our analyses that stratify or control for demographic characteristics (see next section) adjust for the nonresponse bias associated with these characteristics.

2.4 Adjustment for Demographic Characteristics

Another issue is adjustment for demographic characteristics in comparing FFS and managed care respondents or populations. Two questions can be asked in making the comparison:

- What is the (unadjusted) difference in health status between the two populations?
- What is the difference in health status holding constant demographic characteristics?

The first question asks about differences between the two populations, not adjusting for any characteristics of the populations. For example, the average health status of the managed care population might be better because the managed care population is younger, on average, than the FFS population. The second question asks whether the two populations differ controlling for certain observable characteristics that may differ between the two populations, for example, age, sex, and race. The second question asks, within demographic category, are managed care enrollees healthier? For example, does managed care enroll healthier 75 to 84 year old white females than FFS? Both of these questions are valid, and of interest.

Most of our analysis is presented unadjusted for demographic characteristics, that is, it answers the first question posed above. But some of our analyses address the second question. Demographic characteristics are held constant for selected statistics in one of

three ways. First, stratification by demographic characteristic is used. The descriptive analysis of 75 to 84 year olds, for example, is limited to this single age strata, and holds age constant in comparing FFS and managed care. Second, the direct method of age standardization is used to adjust the age distribution of the managed care population to the FFS population in Table 3 when SF-36 scale scores are compared. Third, multiple regression analysis is used to examine the impact of simultaneously controlling for multiple demographic factors on the FFS/managed care difference in SF-36 physical and mental component scores. These regressions examine how much of the FFS/managed care difference in scores can be explained by demographic differences between the two populations.

2.5 Overview of Effect of Adjustments

Table 3 presents an overview of the effects of various adjustments on comparisons of health status scores between the FFS and managed care organization (MCO) samples. Physical Component Scores (PCS), Mental Component Scores (MCS), and the eight SF-36 subscales are shown. The PCS and MCS are presented with alternative scoring methods (SF-36 only, SF-12 only, and SF-36 if available otherwise SF-12—the latter, which is used in the remainder of the report, has suffix "FIN"). Adjusting for MCO plan size has only a small effect on scores. For example, the PCSFIN rises from 40.55 to 40.64 when MCO observations are weighted for plan size. Adjusting the (unweighted) MCO scores to the age distribution of the national Medicare FFS population has a larger effect. Age adjustment accounts for about half the

Table 3

FFS and Managed Care Organization (MCO) Health Status Scores, Alternative Adjustments and Samples

	Unadjusted MCO Sample		Adjusted MCO Sample		Entire FFS Sample		National FFS Sample		
	Number of Respondents	Mean Scores	Enrollment-Weighted MCO ¹	Age Adjusted MCO ²	Number of Respondents	Mean Scores	Number of Respondents	Mean Scores	95% C.I.s ³
PCS36	164,340	40.57	40.68	39.22	5,355	38.28	451	38.04	1.1
PCS12	164,596	41.32	41.42	40.05	6,596	39.11	610	38.87	0.9
PCSFIN	168,922	40.55	40.64	39.23	6,634	38.40	617	38.16	1.0
MCS36	164,340	51.93	51.95	50.99	5,355	51.01	451	49.14	1.1
MCS12	164,596	51.12	51.12	50.22	6,596	50.35	610	48.56	0.9
MCSFIN	168,922	51.83	51.84	50.90	6,634	50.88	617	48.94	0.9
PFS	168,362	40.25	40.07	38.63	5,548	37.87	479	37.44	1.2
RPS	167,762	42.68	42.67	41.39	6,615	40.46	624	39.86	1.0
BPS	168,922	44.48	44.49	43.43	6,634	43.90	626	43.18	1.0
GHS	166,749	45.20	45.21	43.77	5,462	43.04	468	42.16	1.1
VTs	168,904	47.37	47.34	46.12	5,492	45.53	475	44.76	1.1
SFS	168,922	47.35	47.15	45.82	6,634	45.34	629	43.57	1.1
RES	167,343	47.98	47.90	47.00	6,598	47.15	618	45.58	0.8
MHS	168,855	50.68	50.65	49.61	5,490	49.65	475	48.15	1.0
PCS36	This is the mean Physical Component Score, based on the SF-36 Scoring Method.								
PCS12	This is the mean Physical Component Score, based on the SF-12 Scoring Method.								
PCSFIN	This is the mean score for all respondents who received either an SF-36 and/or and SF-12 Score. PCSFIN is equal to PCS36 if available, otherwise, PCSFIN=PCS12.								
MCS36	This is the mean Mental Component Score, based on the SF-36 Scoring Method.								
MCS12	This is the mean Mental Component Score, based on the SF-12 Scoring Method.								
MCSFIN	This is the mean score for all respondents who received either an SF-36 and/or and SF-12 Score. MCSFIN is equal to MCS36 if available, otherwise, MCSFIN=MCS12.								
PFS	Physical Functioning Scale Score (0-100)								
RPS	Role-Physical Scale Score (0-100)								
BPS	Pain Index Scale Score (0-100)								
GHS	General Health Scale Score (0-100)								
VTs	Vitality Scale Score (0-100)								
SFS	Social Functioning Scale Score (0-100)								
RES	Role-Emotional Scale Score (0-100)								
MHS	Mental Health Scale Score (0-100)								

¹Weighted by size of plan²Adjusted to reflect age distribution of FFS Medicare Population. Unweighted.³C.I. is confidence intervals. The mean score plus or minus these factors gives the 95% C.I.**OUTPUT:** RUN002, RUN003, RUN009, RUN013, RUN019**SOURCE:** Health Economics Research, Inc. analysis of the Round One Joint Managed Care (May-September 1998 data)/ Fee-For-Service (June 1998-January 1999 data) Health Outcomes Survey (HOS) Database.

MCO/FFS difference in PCS, and about one-third the difference in MCS (comparing to the national FFS sample). Restricting the FFS sample to the single national random sample has a small to moderate effect on health scores (as compared to the entire FFS sample); PCSFIN falls from 38.28 to 38.04 and MCSFIN from 50.88 to 48.94.

2.6 Tests of Statistical Significance

HER performed tests of statistical significance of MCO/FFS differences. Formal tests were performed for the comparisons of HOS respondents and of MCO/FFS populations. For all these comparisons, the mean health scores of the MCO and FFS respondents were significantly different at a 95% confidence level, using a two-tailed t-test. Chi-squared tests also indicated that the proportions of respondents in each category differed significantly between the two groups for each of the variables we compared. This is due in part to the large number of respondents included in the managed care survey sample. Because of the very precise estimates of the managed care means and proportions, even small differences from FFS become statistically significant. Statistical significance does not, of course, necessarily imply that MCO/FFS differences are clinically or substantively important.

2.7 Clinical Significance of Health Score Differences⁵

The HOS, and therefore our analysis in this report, uses the SF-36 Physical Component Score (PCS) and Mental Component Score (MCS) as basic measures of beneficiary health status. When comparing PCS and MCS among individuals, time periods, or populations (such as the Medicare FFS and MCO populations), what constitutes a clinically significant difference? No universally accepted answer to this question exists. One approach to defining a "minimally clinically important difference" is to apply conventional statistical standards for "effect" sizes. Cohen's (1988) conventions are the most widely known and used. He defines small effects as 0.2 standard deviations, medium effects as 0.5 standard deviations, and large effects as 0.8 standard deviations. Since the MCS and PCS are normalized to have standard deviations of 10 points, these conventions translate into differences of 2, 5, and 8 points on the component scales. The SF-36 developers have themselves endorsed this approach (QualityMetric, Inc., 2000).

Another approach is to relate score differences to external factors that are considered to be important or interpretable. In other contexts, change in component score due to job loss or divorce could provide an interpretable metric. In the analysis of health status, the impact of chronic diseases on health scores provides a natural benchmark. Ware *et al.*, (1995, p. 51) show that the effect of co-morbidities (asthma, COPD, angina, etc.) on the PCS range from 2 to 6 points. Co-morbidities other than clinical depression tend to have much smaller impacts on the MCS (Ware *et al.*, 1995, p. 52). QualityMetric,

⁵ The authors thank Kevin Smith of New England Research Institutes, Inc. for his input to this section.

Inc., (2000) provides additional examples of the clinical correlates of the different effect sizes. For example, an improvement of 2 points on the PCS or MCS has been correlated to pre/post drug treatment for migraine headaches.

Based on these considerations, we consider PCS or MCS differences of 2 points or more between the FFS and managed care Medicare populations to be "minimally clinically important" differences. Differences of less than 2 points are considered to be not very significant clinically.